

REMARKS

This Amendment B is responsive to the Office Action mailed on June 2, 2004. Claims 2-12 are currently pending. Claims 2-12 stand rejected for indefiniteness. Claims 2-12 stand rejected as anticipated by Ference et al. (U.S. Patent No. 4,050,986). The applicants acknowledge with appreciation the Examiner's time in a telephonic interview on August 17, 2004, wherein the indefiniteness rejections and the amendments proposed herein were discussed.

1. Claim Rejections - 35 U.S.C. § 112

Claims 2 and 8 recite that the shield plate array is "directly over" the control rod drive mechanisms. The Examiner has interpreted "directly over" to mean there is no intervening structure between the recited elements and correctly notes that, under this interpretation, the claims do not describe the disclosed invention. The claim amendments proposed herein change "directly over" to "disposed over," which is believed to overcome this objection and to correspond to the disclosed structure.

The phrase "of the type" was found to render claims indefinite because it is unclear what "type" is intended to convey. This language is found only in Claim 2. The claim amendments proposed herein amends Claim 2 to delete this phrase. This is believed to overcome the Examiner's objection.

The recitation of the control rod drive mechanism in Claim 8 was found to lack antecedent basis because it is introduced in a statement of use clause in the preamble of Claim 8.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{LLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Pursuant to discussion with the Examiner, Claim 8 is herein amended to recite "A missile shield assembly [[for]] attached to a nuclear reactor," to clarify the claim and remove the statement of use aspect of the claim. A corresponding amendment is also proposed herein for Claim 2. This is believed to overcome the Examiner's objection. Claims 5 and 11 are also proposed to be amended to remove statement of use clauses directed to the use of the handle. Claims 6 and 12 are also amended to clarify that removal of the removable frame members on the slotted beams provides an opening in the slotted beams for removal of shield plates.

It is believed that all of the Examiner's objections under 35 U.S.C. § 112 have been addressed and overcome by the amendments proposed herein. Entry of these amendments is respectfully requested.

2. Claim Rejections - 35 U.S.C. § 102

The Examiner has found all of the pending claims to be anticipated by Ference et al. (U.S. Patent No. 4,050,986). As best understood by the undersigned, Ference et al. discloses in relevant part a reactor vessel having a head (41) having a set of nested plugs (51, 53 55) that are rotatably supported by cylindrical, annular risers (57, 61, 65) such that "the rotating plugs 51, 53, 55 position the fuel and control handling equipment over all core assembly locations." In particular, there is no teaching or suggestion in Ference et al. that the rotating plugs are removable and the rotary motion of the plugs clearly does not of itself provide for removal of the plugs.

A particular aspect of the present invention is an array of missile shield plates that are slidably disposed in slotted beams that include an open portion such that a shield plate positioned at the open portion is removable by lifting it away. This aspect provides plant workers access to the underlying control rod drive mechanisms without requiring uncovering the entire head.

This aspect of the invention is fully disclosed in the present application. For example, at page 5, lines 13 *et seq.*, the application recites:

In a disclosed embodiment, the missile shield assembly includes an array of shield plates, each shield plate positioned above a control rod drive mechanism, the shield plates being removable such that individual control rod drive mechanisms can be accessed from above. The shield plates are slidably retained between grooved beams and a center shield plate in each row is removable, allowing adjacent shield plates to be slid to access the desired control rod drive mechanism.

Similarly, at page 19, line 17 *et seq.*, of the present application, the shield plate structure is described in more detail, and with reference to FIGURE 19, noting:

A plurality of missile shield plates 1422 are slidably inserted between adjacent slotted beams 1420, as shown in FIGURE 19. The missile shield plates 1422 are arranged in an array between adjacent slotted beams 1420 substantially filling the area between the work platforms 1412 over the CRDMs 96. A central portion of each slotted beam 1420 is provided with a removable frame member 1424 that is secured to the slotted beam 1420, for example, with bolts 1426, such that removal of adjacent frame members 1424 will permit the missile shield plate 1422 disposed therebetween to be lifted out.

This aspect of the present invention, which is not disclosed by Ference et al. or by any of the cited art, wherein an open section is provided (in the disclosed embodiment, by removal of the frame member) such that a missile shield plate can be removed by lifting the missile shield plate out, provides significant advantages by providing access to the reactor vessel head without requiring the entire head to be uncovered. For example, as noted at page 20, line 8, of the present application, "It will also be appreciated that by removing only a single shield plate 1422 at a time and sliding adjacent shield plates 1422 to access the desired CRDM 96, the workers' radiation exposure will be minimal when performing this task."

Amendments are proposed herein for both of the pending independent claims of the present application that emphasize this aspect of the present invention. In particular, the relevant portion of Claim 2 is herein amended to recite "a missile shield assembly, including a plurality of

shield plates that are slidably retained by parallel slotted beams in a horizontal array ~~directly disposed~~ over the reactor vessel closure head, and wherein the slotted beam includes an open section such that one of the plurality of shield plate disposed at the open section is removable by lifting the shield plate from the horizontal array."

Similarly, the relevant portion of Claim 8 is herein amended to recite "a plurality of shield plates that are slidably retained by a plurality of parallel slotted beams in a horizontal array ~~directly disposed~~ over the control rod drive mechanisms supported by the reactor vessel closure head, and wherein the slotted beam includes an open section such that one of the plurality of shield plate disposed at the open section is removable by lifting the shield plate from the horizontal array."

Claim 3 has been incorporated into Claim 2 and canceled, and Claim 9 has been incorporated into Claim 8 and canceled.

CONCLUSION

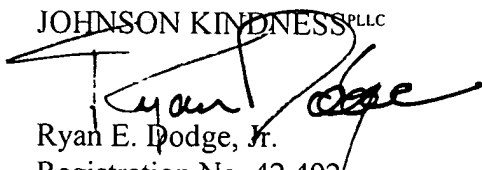
Amendments to the claims are proposed herein that address, and are believed to overcome, all of the Examiner's objections under 35 U.S.C. § 112, including changing "directly over" to "disposed over," amending field of use language to more expressly identify claim elements, and deleting "of the type" from the claims.

The independent claims are further amended to recite that the shield plates are disposed in slotted beams having an open section such that a shield plate disposed at the open section is removable by lifting it away from the array of shield plates. This aspect of the present invention is fully disclosed in the application and not taught or suggested by any of the prior art of record.

Entry of the amendments and a favorable disposition of the application are respectfully requested.

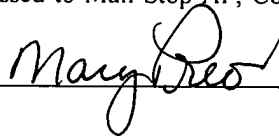
Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{PLLC}


Ryan E. Dodge, Jr.
Registration No. 42,492
Direct Dial No. 206.695.172

I hereby certify that this correspondence is being deposited with the U.S. Postal Service in a sealed envelope as first class mail with postage thereon fully prepaid and addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the below date.

Date: August 18, 2004



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